



FOOD SAFETY RESEARCH: A FOCUS ON

Hazard Analysis and Critical Control Points

Hazard Analysis and Critical Control Points (HACCP) is a production control system for the food industry. It is a process used to determine potential danger points in food production and define a strict management and monitoring system ensuring safe food products for consumers. HACCP is a science-based system designed to prevent potential microbiological, chemical, and physical hazards.

In an effort to reduce the number of foodborne illness outbreaks caused by pathogens such as E. coli O157:H7, Listeria, and Salmonella, the USDA and FDA have mandated manufacturers to implement a HACCP system to reduce foodborne illness and pathogen loads on meat and poultry, fruit and vegetable juices, and seafood products.

Under the mandates, processing plants are required to develop a HACCP plan for each of its products. The plan must identify critical control points during the processes where hazards can occur and establish controls to prevent or reduce those hazards, and maintain records documenting that the controls are working as intended. Corrective actions are to be established when monitoring shows critical limits have not been met.



Apple juice and cider are common juices associated with foodborne illnesses.

FSRIO Web site: A Resource for Food Safety Research Projects

For detailed information and descriptions of HACCP-related research projects, search the Food Safety Research database at <http://fsrio.nal.usda.gov/quicksearch.php>

The ARS National Program 108 Food Safety Report 2000 - 2004

<http://www.ars.usda.gov/SP2UserFiles/Program/108/NP108AccomplishmentReport.pdf>



The International HACCP Alliance provides a uniform program to assure safer meat and poultry products.

RESEARCH AREAS

Evaluate high pressure processing on the inactivation of spores of C. botulinum types A, B, and E.

Study thermal and non-thermal in shell pasteurization to eliminate Salmonella in in-shell eggs.

Evaluate serotypes of E. coli, Salmonella and Listeria to identify entrance into processing systems.

Develop sensitive, rapid tests for industry to identify critical control points and detect contamination.

GENERAL FACTS

- HACCP involves seven principles: analyze hazards, identify critical control points, establish preventive measures with critical limits for each control point, establish procedures to monitor the critical control points, establish corrective actions to be taken when a critical limit has not been met, establish procedures to verify that the system is working properly, and establish effective recordkeeping.
- In addition to human illness, HACCP reduces food safety problems that can otherwise cause economic losses to producers, processors, and consumers, and jeopardize the international competitiveness of the U.S. agricultural industry.
- Meat and poultry HACCP is regulated by the USDA; seafood and juice are regulated by the FDA.
- In 1996, HACCP was mandated for meat and poultry, in 1997 for seafood and for fruit and vegetable juices in 1998.
- Three alliances providing uniform training and education for the implementation and maintenance of HACCP systems include: the International HACCP Alliance, the Seafood HACCP Alliance, and the Juice HACCP Alliance.
- According to the CDC, foodborne illness associated with meat and poultry has declined 21 percent since 1996; the same year HACCP was mandated.

FSRIO DATABASE PROJECTS

Projects in the FSRIO database related to this topic are listed below. Visit FSRIO online to access the projects.

An Enzyme-Based Assay to Verify Adequate Thermal Pasteurization of Apple Juice

USDA. National Research Initiative.

Apple Juice and HACCP: Hazard Surveillance, Training, and Perceptions

USDA. Cooperative State Research Education and Extension.

Develop On-Line Verification And Intervention Procedures For HACCP In Slaughter/Processing Systems

USDA. Agricultural Research Service.

Development of Technology for Automated On-Line Inspection of Animal Carcasses and Plant Produce

USDA. Agricultural Research Service.

Multi-functional Web-based HACCP and Food Safety Course Development

USDA. Cooperative State Research Education and Extension.

Safe Quality Food Practices: Farm to Consumer

USDA. Cooperative State Research Education and Extension.

RESOURCES

This factsheet was produced using the resources listed below. Visit FSRIO online to access these links.

HACCP: A State-of-the-Art Approach to Food Safety Food and Drug Administration.

HACCP Questions and Answers

International HACCP Alliance.

What HACCP Really Means

International HACCP Alliance.

Juice HACCP

FDA. Center for Food Safety and Applied Nutrition.

New Juice Regulations Underway

USDA. Economic Research Service.

National Center for Food Safety & Technology

Illinois Institute of Technology.

HACCP: An Introduction for Oklahoma Food Processors

Oklahoma State University Cooperative Extension.

Seafood HACCP

FDA. Center for Food Safety and Applied Nutrition.

Pathogen Reduction/HACCP & HACCP Implementation

USDA. Food Safety and Inspection Service.



This fact sheet is one of several information products developed by the Food Safety Research Information Office (FSRIO) at the USDA's National Agricultural Library (NAL). Fact sheets on specific food safety research topics are available on the FSRIO web site at:

<http://fsrio.nal.usda.gov/topics.php>

FSRIO is a unique resource for the food safety research community. The program features a web site that serves as a gateway to research information and includes a database of federally-funded research projects. The database is available for researchers, policymakers, consumers and others to learn about research initiatives, and assist the government in assessing food safety research needs and priorities, thereby minimizing duplication of effort. FSRIO also provides a reference service at no charge.

Created by: Kristina Brandriff, Information Specialist

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<http://www.nal.usda.gov>

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Food Safety Research Information Office
10301 Baltimore Ave Room 304, Beltsville, MD 20705-2351
Phone: 301-504-7374 Fax: 301-504-7680
Email: fsrio@nal.usda.gov